tinued. Religious animal sacrifices of the ancients were an after-effect of human sacrifices, as is possibly our practice of saying grace before meat.

Paris.

Academy of Sciences, February 23.—M. Henri Deslandres in the chair.—M. L. **Mangin** gave an account of the life-work of Emile Boudier, correspondant in botany.—H. **Andoyer**: The method of Gauss for the calculation of secular perturbations.—L. **Maquenne** and E. **Demoussy**: The absorption of calcium by plant-roots and its antitoxic properties towards copper. Calcium does not prevent the absorption of copper by the roots of plants, and copper does not prevent the assimilation of calcium. The antitoxic action of calcium, experimental proofs of which are given, is of a physiological order; it prevents a dangerous accumulation of the poisonous metal.—Y. **Delage**: Suggestion for the reason for the double fovea of certain birds of prey.—W. **Kilian**: The repartition of the facies of the Palæo-Cretaceous in the structural units of the south-east of France. J. **Hadamard**: Report on the works examined and retained by the Ballistics Committee during the period of the war.—Prof. Michelson was elected a foreign associate in succession to the late Lord Rayleigh, and M. Camille Viguier a correspondant for the section of anatomy and zoology in succession to the late Gustaf Retzius.—N. **Sakellariou**: The oblique linear and surface curvature of a surface.—H. **Villat**: Certain cyclic movements with or without vortices.—C. **Rabut**: Light concrete: the calculation of increase of power resulting from its use in building. Slag concrete is lighter than concrete made up with sand or gravel. A sketch of the theory of its application is given.—P. **Le Rolland**: The influence of the deformation of the knife-edge and of the plane of suspension on the time of swing of a pendulum.—H. **Georges**: A new alternating mercury arc. A description of a new quartz mercury lamp which with electromotive forces of more than 500 volts starts cold.—L. **Guillet**: The alloys of copper, zinc, and nickel. An account of the mechanical properties of alloys containing copper, 46 and 40·5 per cent.; zinc, 43·2 and 44·7 per cent.; and nickel, 10·4 and 14·4 per cent. Comparisons with brasses free from nickel are added. Compared with brass, these alloys possess advantages in colour, greater resistance to oxidation, and facility of forging at high temperatures.—C. **Matignon** and M. **Fréjacques**: The dissociation of ammonium carbamate. Dissociation pressures are given for temperatures ranging from 100° to 150° C.—M. **Tiffeneau** and A. **Orekhoff**: The transposition of the phenyl group in the tetrahydronaphthalene series.—R. **Souèges**: The embryogeny of the Chenopodiaceæ. Development of the embryo in *Chenopodium Bonus-Henricus*.—L. **Emberger**: The evolution of the chondriome in the formation of the sporangium in ferns.—J. **Pottier**: The generality of the foliar asymmetry in mosses.—P. **Dangeard**: The evolution of the vacuolar system in Gymnosperms.—P. **Portier** and Mme. Lucie **Randoin**: The creation of vitamines in the intestines of rabbits receiving nourishment sterilised at a high temperature.

Books Received.

Card Test for Colour Blindness. By Dr. F. W. Edridge-Green. 24 cards. (London: G. Bell and Sons, Ltd.) 25*s.* net.

The Development of the Atomic Theory. By A. N. Meldrum. Pp. ii+13. (London: Oxford University Press.) 1*s.* 6*d.* net.

The Social Worker. By C. R. Attlee. Pp. viii+286. (London: G. Bell and Sons, Ltd.) 6*s.* net.

Smithsonian Meteorological Tables. Fourth revised edition. Pp. lxxii+261. (Washington: Smithsonian Institution.)

The Sumner Line, or Line of Position as an Aid to Navigation. By G. C. Comstock. Pp. vi+70. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 6*s.* net.

Blank Reduction Forms for Line of Position Observations (Marc St. Hilaire Method). By G. C. Comstock. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 2*s.* 6*d.* net.

Silvanus Phillips Thompson, D.Sc., LL.D., F.R.S.: His Life and Letters. By J. S. and H. G. Thompson. Pp. ix+372. (London: T. Fisher Unwin, Ltd.) 21*s.* net.

Wild Life in Canada. By Capt. A. Buchanan. Pp. xx+264. (London: J. Murray.) 15*s.* net.

Collected Scientific Papers. By Prof. J. H. Poynting. Pp. xxxii+768. (Cambridge: At the University Press.) 37*s.* 6*d.* net.

The Principles of Aërography. By Prof. A. McAdie. Pp. xii+318. (London: G. G. Harrap and Co.) 21*s.* net.

General Science: First Course. By L. Elhuff. Pp. viii+435. (London: G. G. Harrap and Co.) 5*s.* net.

Quantitative Analysis by Electrolysis. By A. Classen and H. Cloeren. Revised English edition by Prof. W. T. Hall. Pp. xiii+346. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 17*s.* 6*d.* net.

Practical Histology. By Prof. J. N. Langley. Third edition. Pp. viii+320. (Cambridge: W. Heffer and Sons, Ltd.) 10*s.* 6*d.* net.

Fuel Production and Utilization. By Dr. H. S. Taylor. Pp. xiv+297. (London: Baillière, Tindall, and Cox.) 10*s.* 6*d.* net.

History of the Great War, Based on Official Documents. Naval Operations. By Sir Julian Corbett. Vol. i. Pp. xiv+470+vol. of 18 maps. (London: Longmans and Co.) 17*s.* 6*d.* net.

Nature and Super-Nature: A Key to the Spiritual World. By J. Leslie. Pp. 80. (Aberdeen: W. Jolly and Sons, Ltd.) 2*s.*

DIARY OF SOCIETIES.

THURSDAY, March 18.

Royal Institution of Great Britain, at 3.—Stephen Graham: The Spirit of America after the War.

Royal Society, at 4.30.—W. B. Brierley: A Form of *Botrytis cinerea* with Colourless Sclerotia.—R. R. Gates: A Preliminary Account of the Meiotic Phenomena in the Pollen Mother Cells and Tapetum of Lettuce (*Lactuca sativa*).

Linnean Society, at 5.—Dr. J. Small: The Chemical Reversal of Geotropic Response in Roots and Stems.

Royal College of Physicians, at 5.—Sir John R. Bradford: The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914-1919 (Lumleian Lecture).

Royal Institute of Public Health, at 5.—Dr. S. V. Pearson: Suggested Reforms in the Campaign against Tuberculosis.

Institution of Mining and Metallurgy (at Geological Society), at 5.30.—W. R. Jones: Tin and Tungsten Deposits: The Economic Significance of their Relative Temperatures of Formation.

Institution of Electrical Engineers (at Institution of Civil Engineers), at 6.—Adjourned Discussion on the Papers of W. H. Patchell and S. H. Fowles read at the Meeting on March 11.

Chemical Society, at 8.—I. Masson and R. McCall: The Viscosity of Nitrocellulose in Mixtures of Acetone and Water.—H. Stephen, W. F. Short, and G. Gladding: The Introduction of the Chloromethyl Group into the Aromatic Nucleus.—H. E. Cox: The Influence of the Solvent on the Velocity of Reaction between certain Alkyl Iodides and Sodium β-Naphthoxide.—H. Crompton and P. L. Vanderstichele: The Use of 1:2-Dichlorovinylethyl Ether for the Production of Chloroacetates and Acid Chlorides.

Society of Antiquaries, at 8.30.

FRIDAY, March 19.

Royal Society of Arts (Indian Section), at 4.30.—Sir William S. Meyer: The Indian Currency System and its Developments.

Concrete Institute, at 6.—Dr. O. Faber: The Practical Application of Reinforced Concrete.

Institution of Mechanical Engineers, at 6.—D. Brownlie: Exact Data on the Performance of Mechanical Stokers, as applied to "Lancashire" and other Narrow-flued Boilers.

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Junior Institution of Engineers, at 7.30.—W. H. F. Robba: Shipbuilding and Shipping Developments in Italy.

Royal Society of Medicine (Electro-Therapeutics Section), at 8.30.—Dr. A. E. Barclay and Others: Discussion on Radium-Therapy and Radio-Therapy of Exophthalmic Goitre.—Dr. S. Russ: Vision by Ultra-violet Light.

Royal Institution of Great Britain, at 9.—E. McCurdy: Leonardo da Vinci.

SATURDAY, March 20.

Royal Institution of Great Britain, at 3.—Sir J. J. Thomson: Positive Rays.

Physiological Society (at University College), at 4.—J. F. Donegan and Others: Innervation of Veins.

MONDAY, March 22.

Aristotelian Society (at 74 Grosvenor Street, W.1), at 8.—C. C. J. Webb: Obligation, Autonomy, and the Common Good.

Medical Society of London, at 8.30.—E. M. Little and Others: Discussion on the Re-education of the Amputated.

Royal Geographical Society (at Philharmonic Hall), at 8.30.—Sir Ernest Shackleton: The 1914-1917 Antarctic Expedition.

TUESDAY, March 23.

Royal Anthropological Institute and Prehistoric Society of East Anglia (Joint Meetings) (at Geological Society), at 3.—The Prehistoric Society of East Anglia.—Prof. J. E. Marr: Man and the Glacial Period (Presidential Address).—H. Dewey: Flat-based Celts from Kent, Hampshire, and Dorset.—Dr. A. E. Peake: Exhibit of Specimens found at Grime's Graves in 1919.

Royal Horticultural Society, at 3.—Rev. J. Jacob: Wandering down Old Garden By-roads.

Royal Institution of Great Britain, at 3.—Prof. A. Keith: British Ethnology—The Invaders of England.

Royal College of Physicians, at 5.—Sir John R. Bradford: The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914-1919 (Lumleian Lecture).

Institution of Civil Engineers, at 5.30.—Col. D. Lyell: The Work done by Railway Troops in France during 1914-1919.

Royal Anthropological Institute and Prehistoric Society of East Anglia (Joint Meetings) (at Geological Society), at 6.—Prof. A. Keith: How Far Cranial Characters can Help in Estimating the Antiquity of Human Remains. (Lantern.)

Royal Photographic Society of Great Britain (Technical Meeting), at 7.—Dr. B. Glover: Factorial and Time Methods of Development applied to Bromide and Gaslight Papers: Theoretical Principles and Practical Demonstrations.

Faraday Society (at Chemical Society), at 7.30.—General Discussion:—Basic Slags: Their Production and Utilisation in Agricultural and other Industries. Prof. F. G. Donnan will preside over the discussion.—Dr. E. J. Russell will open the discussion and give a general survey of the subject.—Prof. C. H. Desch will discuss the subject from the Physico-Chemical Standpoint.—Sir T. H. Middleton: The National Aspects of the Case for Increasing the Supplies of Basic Slag.—Sir A. Daniel Hall: The Demand for Basic Slag.—Prof. D. A. Gilchrist: Basic Slag and its Place in the Development of Agriculture.—G. Scott Robertson: A Comparison of the Effect of various Types of Open-hearth Basic Slag on Grassland.—Dr. J. E. Stead, F. Bainbridge, and E. W. Jackson: Papers on Solubility of Basic Slags.—D. Sillars: The Formation of Basic Slag in the Manufacture of Steel.—W. S. Jones: The Improvement of Low-grade Basic Slag.

WEDNESDAY, March 24.

Institution of Naval Architects (at Royal Society of Arts), at 11.—The Earl of Durham: Presidential Address.—Sir Eustace D'Eyncourt: H.M.S. *Hood*.—A. W. Johns: German Submarines.—G. S. Baker: Mode Experiments in Connection with Submarine Warfare.

Association of Economic Biologists (General Meeting) (in Botany School of the Imperial College of Science and Technology), at 11.30.—Short Communications and Exhibitions.—D. W. Cutler: The Relation of Protozoa to Soil Problems.—Winifred E. Brenchley: Correlation between Seed and Crop.—At 2.15.—Dr. W. Lawrence Balls: The Nature and Scope of Botanical Research in the Cotton Industry.—M. C. Rayner: The Calcifuge Habit in Ling (*Calluna vulgaris*) and other Ericaceous Plants.—H. Wormald: Shoot Wilt of Plum Trees.

Royal Society of Arts, at 4.30.—L. Gaster: Industrial Lighting in its relation to Efficiency.

Geological Society of London, at 5.30.—Mrs. E. M. Reid: Two Pre-Glacial Floras from Castle Eden, Durham, and a Comparative Review of Pliocene Floras, based on the Study of Fossil Seeds.

Psychological Society (Industrial Section) (at Examination Rooms of the Royal College of Physicians, 8-11 Queen Square, W.C.1), at 6.—Miss G. Broughton: The Psychological Causes of the Wastage of Labour in Factories employing Women.

THURSDAY, March 25.

Institution of Naval Architects (at Royal Society of Arts), at 11.—Sir Alfred Yarrow: Notes on our Economic Position as a Shipbuilding Country.—J. Anderson: Further Notes on the Dimensions of Cargo Steamers.—Dr. J. Bruhn: Freeboard and Strength of Ships.

Institution of Naval Architects (at Royal Society of Arts), at 3.—P. R. Jackson: The Stabilisation of Ships by means of Gyroscopes.—Prof. K. Suyehiro: Yawing of Ships caused by Oscillation amongst Waves.

Royal Institution of Great Britain, at 3.—Stephen Graham: The Hope for Russia.

Royal Society, at 4.30.—*Probable Papers*: Prof. A. R. Forsyth: Note on the Central Differential Equation in the Relativity Theory of Gravitation.—R. D. Oldham: The Frequency of Earthquakes in Italy in the Years 1896 to 1914.—A. F. Dufton: A New Apparatus for Drawing Conic Curves.—Capt. J. W. Bispham: An Experimental Determination of the Distribution of the Partial Correlation Coefficient in Samples of 30.

Chemical Society (Annual General Meeting), at 5.—Sir James J. Dobbie: Presidential Address.

Royal College of Physicians, at 5.—Sir John R. Bradford: The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914-1919 (Lumleian Lecture).

Child-Study Society (at Royal Sanitary Institute), at 6.—Dr. E. Sloan Chesser: Adolescence and the Continuation Schools.

Institution of Electrical Engineers (at Institution of Civil Engineers), at 6.—Discussion on:—(*a*) The Electrical Equipment of Artisan Dwellings (with Introductory Paper by L. Milne). (*b*) The Report of the Earthing Sub-Committee of the Wiring Rules Committee of the Institution.

Institution of Naval Architects (at Royal Society of Arts), at 7.30.—C. I. R. Campbell and C. H. May: The Effect of Size upon Performance of Rigid Airships.—Prof. E. G. Coker and A. L. Kemball, jun.: The Effects of Holes, Cracks, and other Discontinuities in Ships' Plating.

Chemical Society (Informal Meeting), at 8.

FRIDAY, March 26.

Institution of Naval Architects (at Royal Society of Arts), at 11.—Eng.-Com. H. B. Tostevin: Experience and Practice in Mechanical Reduction Gears in Warships.—J. J. King-Salter: The Balancing of Rotors and Determining the Position and Amount of the Balancing Weights.—Prof. T. H. Havelock: Turbulent Fluid Motion and Skin Friction.

Physical Society of London, at 5.—Prof. A. S. Eddington and Others: Discussion on Einstein's Theory of Relativity.

Wireless Society of London (at Institution of Civil Engineers), at 6.—Capt. L. A. T. Broadwood: Harmonics in Continuous Wave Transmissions (Illustrated by Lantern Slides and Experiments).

Institution of Mechanical Engineers (Informal Meeting), at 7.—P. L. Young and Others: Discussion on Foundry Memories.

Royal Institution of Great Britain, at 9.—Sir J. J. Thomson: The Scientific Work of the late The Right Hon. Lord Rayleigh.

SATURDAY, March 27.

Royal Institution of Great Britain, at 3.—Sir J. J. Thomson: Positive Rays.

CONTENTS.

PAGE
Science and the New Army . . . 61
The Roast Beef of Old England. By C. C. . . . 62
French Text-books of Chemistry. By J. B. C. . . . 63
Indian Beetles. By C. J. G. . . . 64
Mathematics: Pure and Applied. By Dr. S. Brodetsky . . . 65
Our Bookshelf . . . 67
Letters to the Editor:—
  Museums and the State.—**Prof. E. W. MacBride, F.R.S.; Prof. J. W. Gregory, F.R.S.; Dr. F. A. Bather, F.R.S.; Dr. Wm. Evans Hoyle; William G. Wagner** . . . 68
  Some Methods of Approximate Integration and of Computing Areas.—**A. S. Percival** . . . 70
  An Electronic Theory of Isomerism. (*With Diagrams.*)—**Dr. H. S. Allen** . . . 71
  The Principle of Equivalence and the Notion of Force.—**C. A. Richardson** . . . 72
  Expenses of Scientific Work.—**Major A. G. Church** 72
  Scientific Reunions at the Natural History Museum.—**Dr. G. F. Herbert Smith** . . . 72
The World's Production of Silver . . . 73
Time-reckoning of the North American Indians . 75
Obituary: Dr. Charles Gordon Hewitt . . . 75
The Gyrostatic Compass. (*Illustrated.*) By S. G. Brown, F.R.S. . . . 77
Notes . . . 80
Our Astronomical Column:—
  The Total Solar Eclipse of September 20, 1922 . . . 84
  The Binary Star *p* Eridani . . . 84
  Faint Nebulæ . . . 84
International Fishery Investigations . . . 84
Exhibition of Diseases of the Para Rubber-tree . . 86
The Position of the Meteorological Office . . . 87
Earthworks and Retaining Walls . . . 87
Fellowship of the New Zealand Institute . . . 88
The Proposed University of Reading . . . 88
University and Educational Intelligence . . 88
Societies and Academies . . . 89
Books Received . . . 91
Diary of Societies . . . 91

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